

Education Partnership Opportunities

Education Partnerships and Effective Tool for the Department of Army Operations Support Command

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Technology Transfer - Education

- **Key Authorities**
- **Education Partnership Act**
- **The ORTA and the Air Force**
- **Benefits/Liabilities of EPAs**
- **EPAs, The Army, and YOU
- starting today**

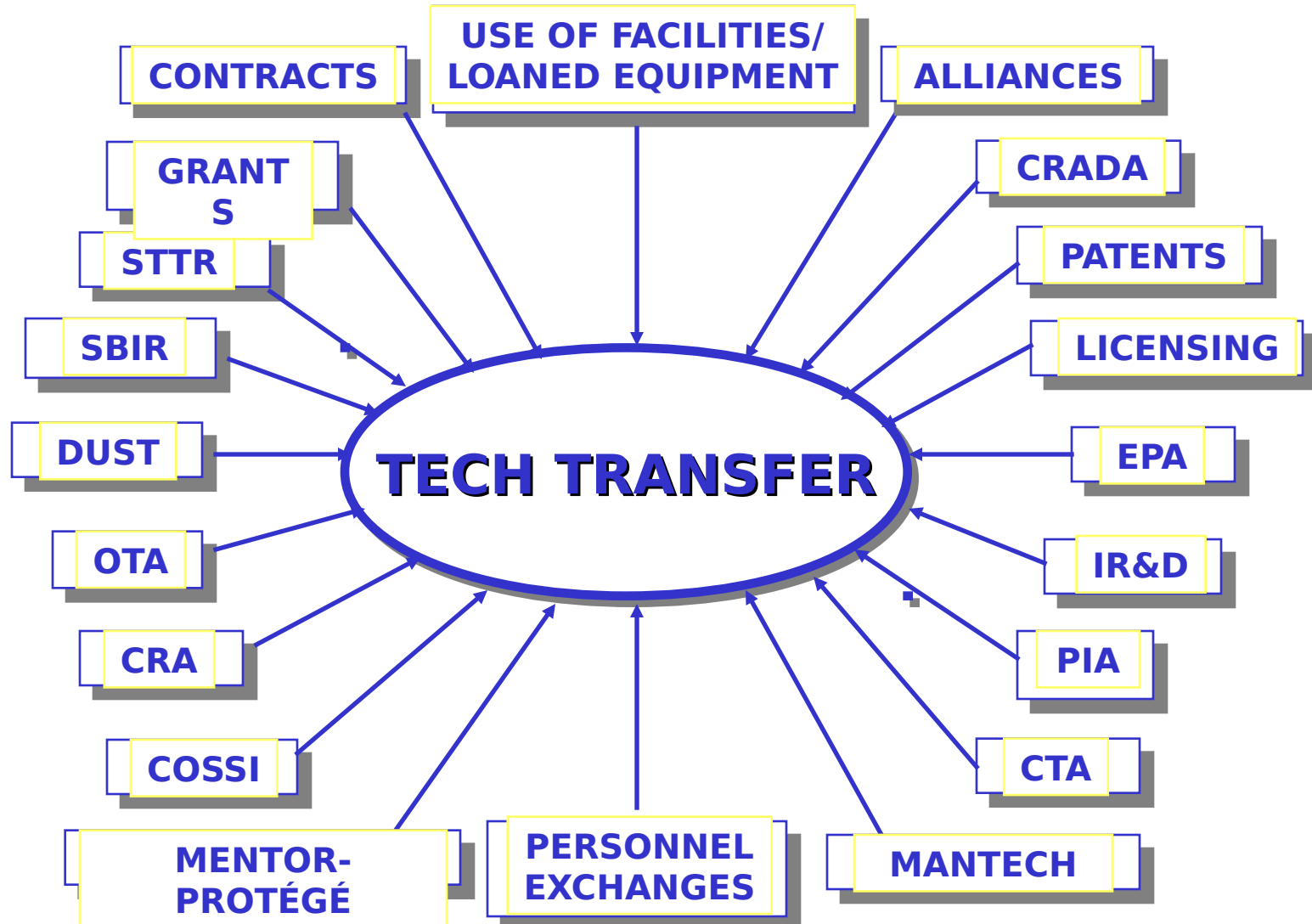
Education Interactions Congressional & Executive Authorities

AUTHORITY FOR TECH TRANSFER AND EDUCATION INTERACTION

- **Stevenson-Wydler Technology Innovation Act of 1980**
- **Bayh-Dole Act**
- **Federal Technology Transfer Act of 1986**
- **National Defense Authorization Act for FY93**
- **Education Partnership Act of FY94, with Amendments in FY96 (10 USC 2501-2509)**
- **Telecommunications Act of FY96**
- **Executive Order 12591, Facilitating Access to Science and Technology**
- **Defense Federal Acquisition Regulation Supplement DFARS Part 226 -- Other Socioeconomic Programs**
 - **DFARS Subpart 226.1 Indian Incentive Program**
 - **DFARS Subpart 226.7 Historically Black Colleges and Universities**
- **Executive Order 12999, Educational Technology: Ensuring Opportunities for All Children in the Next Century**
- **DoD Directive Domestic Technology Transfer Program 5535.3**
- **DoD Instruction Domestic Technology Program 5535.8**
- **DoD Cooperative Education Programs (10 USC 2195)**



Technology Transfer Mechanisms



What Is An Education Partnership Agreement ?

A formal agreement between a federal agency (or agencies) and an educational institution to transfer and/or enhance technology applications and provide technology assistance for all levels of education (pre-kindergarten and up).

The Education Partnership Act Provides Authority For The Director Of The Laboratory To:

- **Loan equipment.**
- **Declare as surplus and transfer (donate) equipment.**
- **Make laboratory personnel available to teach or assist in developing courses and course materials.**
- **Involve faculty and students in research.**
- **Cooperate with institution so students can earn academic credits for laboratory research work.**
- **Provide academic and career advice and assistance to students.**

The Education Partnership Act, 10 U.S.C. 2194 as amended

§ 2194. Education partnerships

(a) The Secretary of Defense shall authorize the director of each defense laboratory to enter into one or more education partnership agreements with educational institutions in the United States for the purpose of encouraging and enhancing study in scientific disciplines at all levels of education. The educational institutions referred to in the preceding sentence are local education agencies, colleges, universities, and any other non-profit institutions that are dedicated to improving science, mathematics, and engineering education.

(b) Under a partnership agreement entered into with an educational institution under this section, the director of a defense laboratory may provide, and is encouraged to provide, assistance to the educational institution by-

- (1) loaning defense laboratory equipment to the institution for any purpose and duration in support of such agreement that the director considers appropriate,
- (2) transferring to the institution defense laboratory equipment determined by the director to be surplus notwithstanding the provisions of the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seq.) or any provision of law or regulation relating to transfers of surplus property, transferring to the institution any computer equipment, or other scientific equipment, that is -;
 - (A) commonly used by educational institutions;
 - (B) surplus to the needs of the defense laboratory; and
 - (C) determined by the director to be appropriate for support of such agreement;
- (3) making laboratory personnel available to teach science courses or to assist in the development of science courses and materials for the institution;
- (4) involving faculty and students of the institution in defense laboratory research project;
- (5) cooperating with the institution in developing a program under which students may be given academic credit for work on defense laboratory research projects; and
- (6) providing academic and career advise and assistance to students of the institution;

(c) The Secretary of Defense shall ensure that the director of each defense laboratory shall give a priority under this section to entering into an education partnership agreement with one or more historically Black colleges and universities and other minority institutions referred to in paragraph (3), (4), and (5) of section 312(b) or the Higher Education Act of 1965 (20 U.S.C. 1058(b)).

(d) The Secretary of Defense shall ensure that, in entering into education partnership agreements under this section, the director of a defense laboratory gives a priority to providing assistance to educational institutions serving women, members of minority groups, and other groups of individuals who traditionally are involved in the engineering and science professions in disproportionately low numbers.

(e) In this section, the term "local education agency" has the meaning given such term in section 1471(12) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 2891 (12)).

- (1) The term 'defense laboratory'; means any laboratory, product center, test center, depot, training and educational organization, or operational command under the jurisdiction of the Department of Defense.
- (2) The term 'local educational agency' has the meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).

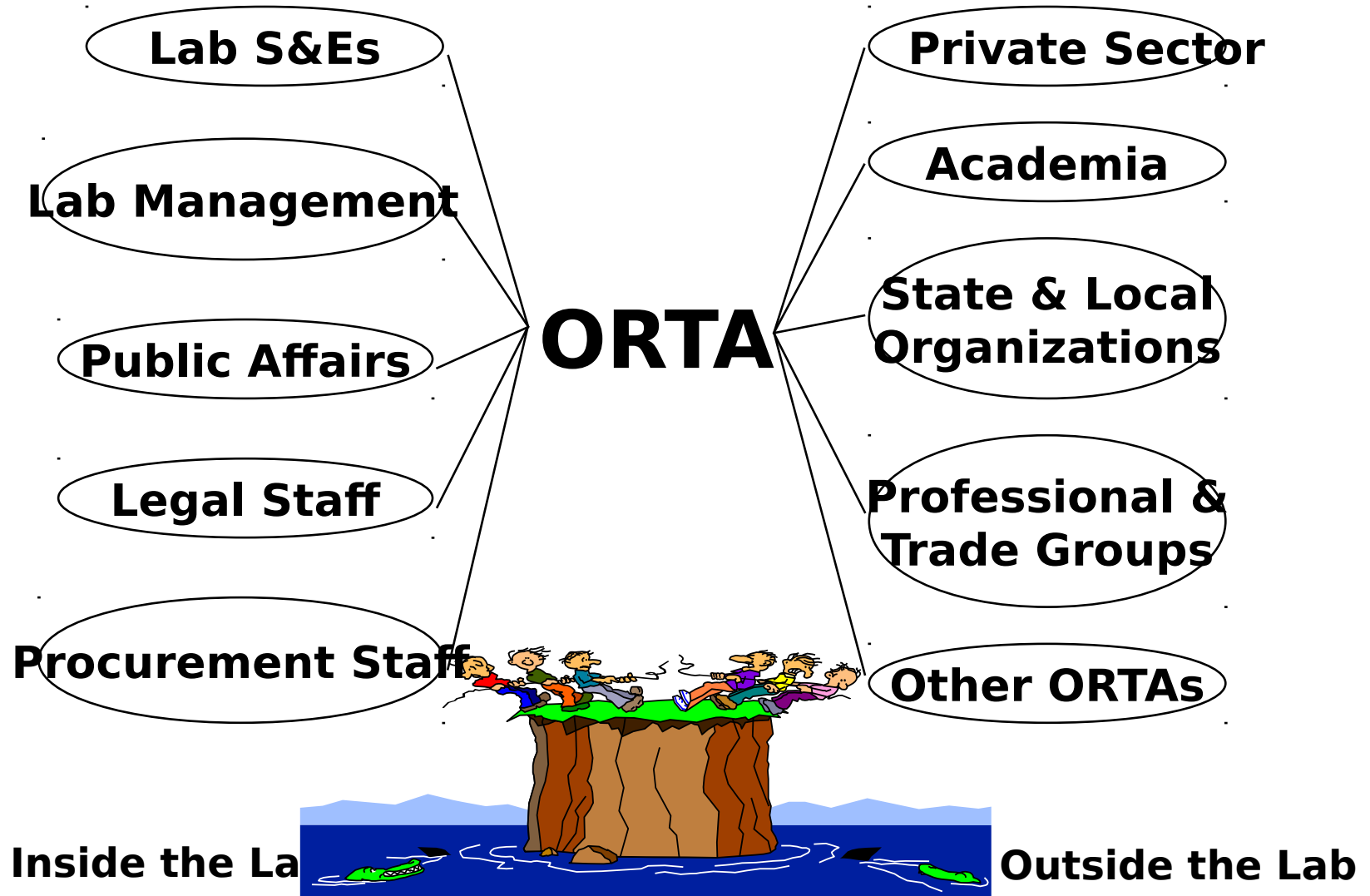
ORTA Functions

It shall be the function of each Office of Research and Technology Application

1. Prepare application assessments for selected research and development projects which that laboratory is engaged and which in the opinion of the laboratory may have potential commercial applications;
2. Provide and disseminate information on federally owned or originated products, processes, and services having potential application to State and local government and to private industry;
3. Cooperate with and assist the National Technical Information Service, the Federal Laboratory Consortium for Technology Transfer, and other organizations which link the research and development resources of that laboratory and the Federal Government as a whole to potential users in State and local government and private industry;
4. Provide technical assistance to State and local government officials; and
5. Participate, where feasible, in regional, State, and local programs designed to facilitate or stimulate the transfer of technology for the benefit of the region, State, or local jurisdiction in which the Federal laboratory is located



AFRL's Office of Research and Technology Applications





AFRL Phillips Research Site Technology Transfer Activities



- **Assist in transferring DoD technology to state and local government.**
- **Provide responsive channels for coupling outside users to technology.**
- **Promote transfer agreements with private companies, universities, state and local governments, foundations, not-for-profits, and other organizations.**
- **Encourage employee activities for facilitating scientific or technological advancements and for facilitating transfer of technology from the Laboratory to the private sector.**

EPA Process



Public Knowledge

1. Institution Generated Interest
2. Air Force Generated Interest

- Targeted Mailings to schools
- Briefings to educational institutions
- Trade shows/trade journals
- Web Pages
- Press Releases

1. Educational Institution acquires knowledge of Air Force Research and Development projects through standard media releases (Institution Generated Interest), word of mouth, or through information targeted for education and released by the Air Force (Air Force Generated Interest)

1. Develops idea or opportunity.
2. Learn about partnership opportunity.
3. Determines desire to partner
4. Contacts Air Force

Educational Institution

1. Partnership on EPA begins
2. Educational Institution develops needs and goals internally
3. Air Force and education institution determines level of effort, goals and resources.
4. Develop student requirements/benefits for participation in program.
5. Develop Specific Obligations.

Air Force POC

ORTA

1. Establish education outreach project concept or
2. Identify education and/or research requirements.
3. Determine desire to partner.
4. Contact ORTA.

EPA

1. Negotiate EPA

ORTA

1. Reviews rough draft
2. Provides feedback to AF POC and Educational Institution
3. Coordinates preliminary legal review

Legal

1. Preliminary review determines if any major legal issues exist

ORTA

1. Coordinate any changes with POCs
2. If sufficient, coordinates final signature process

1. Analyze Educational Institutions credentials
 - foreign/ domestic
 - government or 501c.3 status
 - HBCU/MI
 - encourages women and other under-represented groups participation in
 - other- not for profit, university, state or local government
2. Analyze intellectual property potential
3. Determines proper mechanism for partnership
4. Collects letter of intent
5. Develops partnership strategy
6. Establish Measures of Effectiveness (MOE)
7. Constant two way discussion with POC
8. AF Form 813 Environmental Impact Analysis

1. Two original documents signed by educational institution
2. Staff Summary Sheet and Fact Sheet prepared by Lab technical POC
3. Draft Press Release prepared by Educational Institution and approved by Public Affairs
4. Coordinate including Final legal review

Final Signature Process

5. Receive Chief Scientist recommendation
6. Approving Official signature (AFRL/XX)
7. ORTA retains one original, Educational Institution retains other
8. Executed copy goes to directorate focal point for files and/or distribution
9. ORTA submits EPA data to AFRL/XPTT



Education Partnership Agreement (EPA) With Texas A&M



Leveraging Through Cost Savings

**OBJECTIVE: TRANSFER 200 OIL FILLED
TRANSFORMERS**

AIR FORCE BENEFITS/IMPACTS

- **BENEFITS:**
 - Pulsed power research of interest to the Lab
 - No need for environmental remediation
- **IMPACTS:**
 - \$200,000 + in cost savings

TEXAS A & M

- Enhances several major R & D and graduate programs at the University
- Leverages \$5M grant for the University from DOD



EPA with Albuquerque Technical Vocational Institute (TVI)



- Donation of underutilized machine shop equipment
- Enables a TVI Advanced Metals Program
- AFRL name recognition enhances TVI recruitment
- Meet AFRL special machining requirements through TVI
- Access to all TVI machine shop capabilities for AFRL



Leveraging Through Donation Of Educationally Useful Equipment



- Boring machine donated to NM STATE UNIVERSITY supports training technicians in support of DOE's WIPP program (\$1.2 M Cost Savings)
- Optical components donated to NEW MEXICO TECH to support ARMY agreement to develop optical telescope at MAGDELENA RIDGE (\$3 M Cost Savings)



Air Force Research Laboratory at Kirtland Air Force Base



Technology Transfer For Education K-12 Projects

PETES



Mars Missions



Pinpoint WeatherNet



CAM



TEK



SPACE





Air Force Research Laboratory Mars Missions Project



OBJECTIVE:

Integration of AFRL technologies and the arts and music with the Marsville® curriculum to provide a unique hands-on learning experience for fifth grade students

BENEFITS:

- **Exposes students to technological, scientific and environmental issues**
- **Combines use of math, science, engineering, communication, art, and music in a classroom curriculum based on space exploration studies**
- **Ability for students to learn cooperation with each other and with students in**



IMPACT:

- **Over 100 schools and 6200 students impacted**
- **Gives students an appreciation for the role of technology in every day life and in their future**
- **Effectively demonstrates that the arts and sciences can be integrated**
- **Programs available to all communities in New Mexico and surrounding areas**



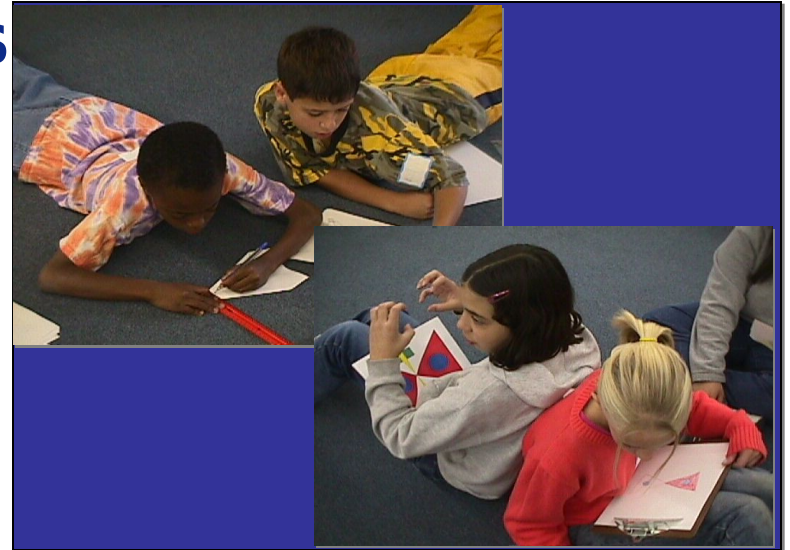
Air Force Research Laboratory at Kirtland Air Force Base



Providing Engineering and Technology Experiences for Students (PETES)

OBJECTIVE:

- **Attract and instill confidence in students who do not envision themselves in Mathematics, Science, Engineering and Technology careers**
- **Instill character values drawn from the Air Force Core Values**



BENEFITS TO PARTICIPATING SCHOOLS:

- **Give positive technical experiences to students at critical stage in career-imaging**
- **Improve students' overall confidence and interest in math, science and technology**

BENEFITS TO AFRL:

- **Increase interest in future careers with the laboratory**
- **Community awareness of the Air Force Core Values**
- **Goodwill and a better informed general public**



Air Force Research Laboratory

Students Planning And Conducting Engineering (SPACE)

OBJECTIVE:

Provide an opportunity for students to explore real-world Research and Development Projects.

BENEFITS TO SCHOOLS:

- Students get to work with mentors from AFRL and other organizations on high-tech projects
- Systems engineering approach is emphasized
- Patent and licensing potential on project results
- Multidisciplinary involvement in engineering design which encourages



BENEFITS TO AFRL:

- Increase interest in future careers with the laboratory
- Goodwill and a better informed general public
- Leadership opportunities for mentors

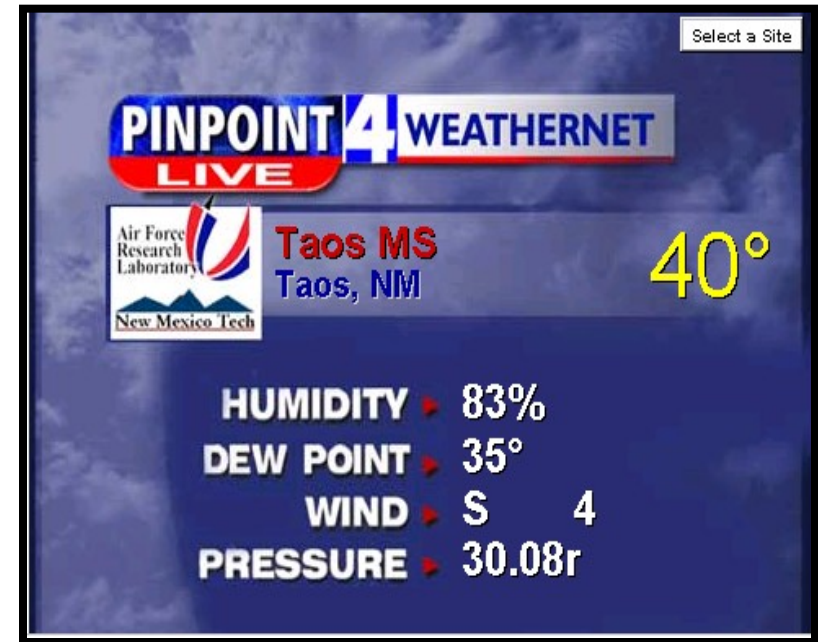


Air Force Research Laboratory Pinpoint WeatherNet (PWN)



OBJECTIVE:

- Collaborate with KOB-TV 4 to establish a state-wide weather monitoring network
- Encourage students to pursue studies in math, science and engineering



BENEFITS TO KOB-TV 4 and SCHOOLS BENEFITS TO AFRL:

- Access to real-time weather conditions for each participating school
- Multi-disciplinary courseware to use throughout the state of NM
- Interpret and manipulate weather data from school weather stations located throughout the US
- Real-time access to local weather conditions at strategic locations
- Goodwill and better informed public
- Over \$4.7 Million in promotional airtime



Air Force Research Laboratory Computer Assisted Mathematics Instruction (CAMI)



OBJECTIVE:

- Enhance the study of math, science, and engineering
 - Test the effectiveness of computer-based fundamental skills tutors developed by AFRL
 - Explore potential for using the tutors in alternative education environments
- ## **BENEFITS TO PARTICIPATING SCHOOLS:**

- Proven capability to enhance classroom grade performance
- Exposure to AFRL research and development techniques and processes
- Access to high tech tools for



BENEFITS TO AFRL:

- Improved readiness and capabilities of new recruits and future technicians
- Goodwill and a better informed general public



Air Force Research Laboratory Technology Equipment for Kids (TEK)



OBJECTIVE : TRANSFER SURPLUS FEDERAL EQUIPMENT - COMPUTERS

- Checkout and Upgrade
- Assure Educationally Useful
- Distribution to K - 12 Schools

BENEFITS:

- Private/Public Partnership for Education
- Schools Receive Quality/Useful Equipment/Software

IMPACTS:

- Over 4,500 Items Donated on Behalf of AFRL



COMMUNITY/BUSINESS SECTION INVESTMENT:

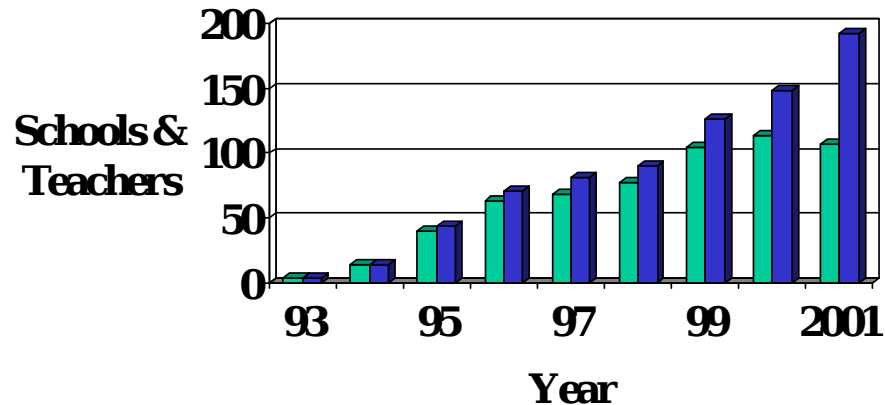
- State of NM - Over \$2 M to Fund Upgrades
- Intel - 10,000 New Computer Processors



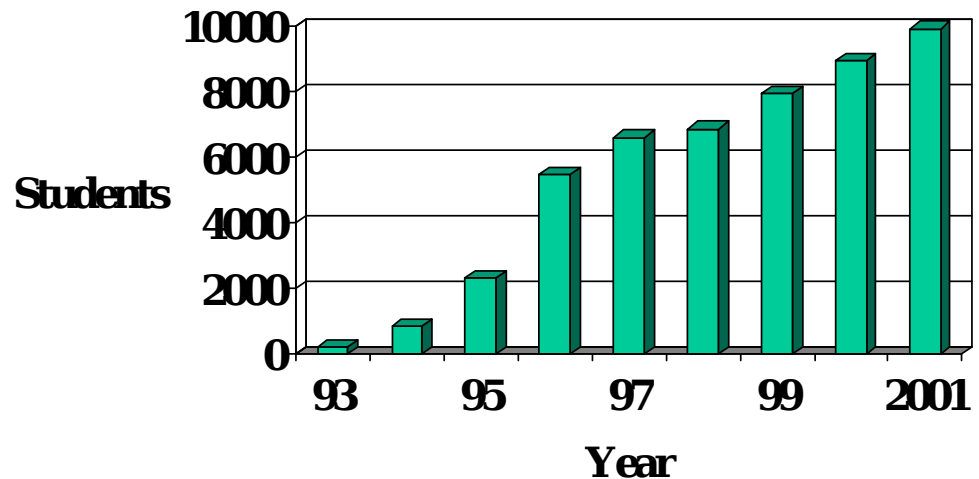
Technology Transfer for Education School and Student Participation

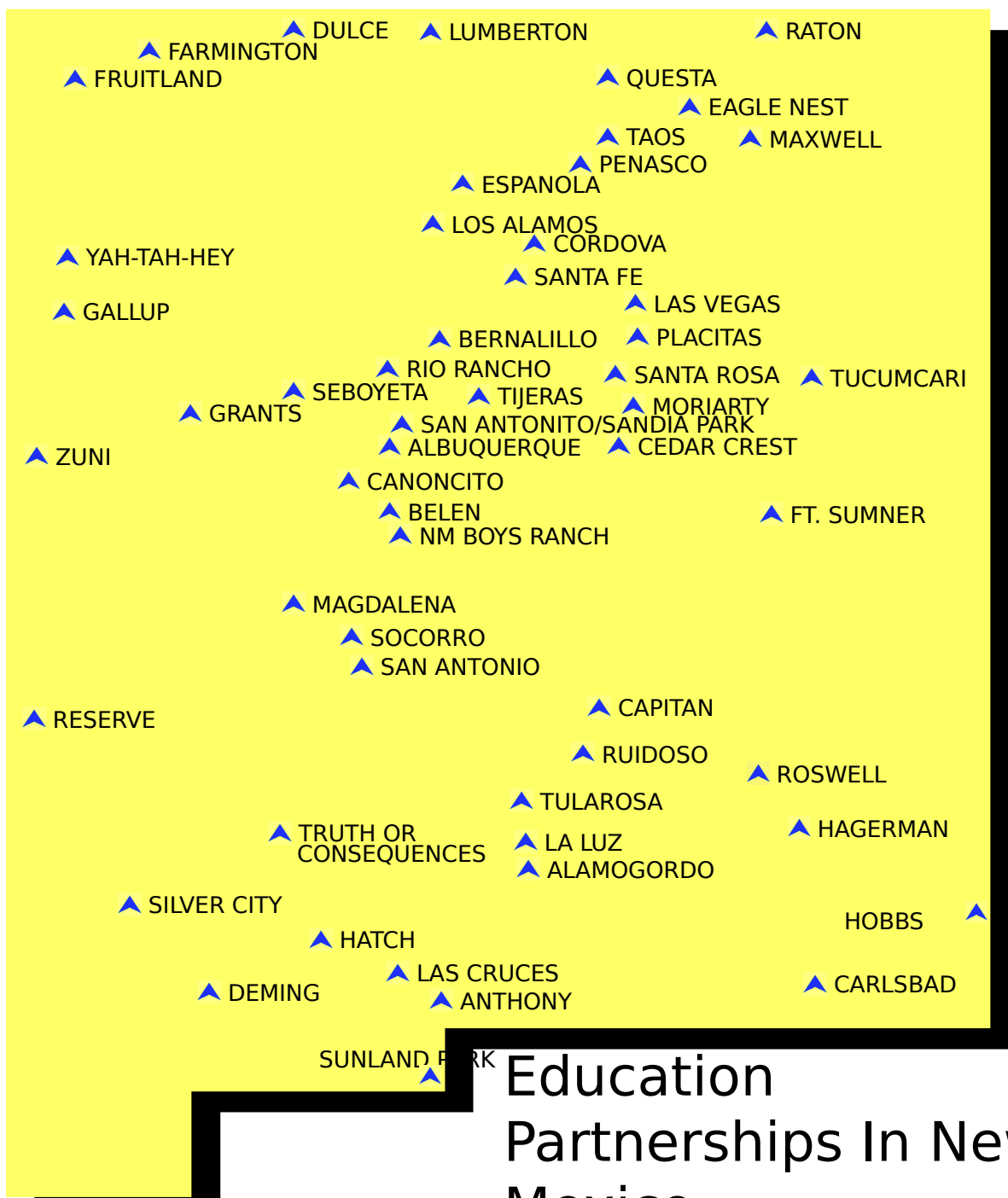


**Technology Transfer for Education
School & Teacher Participation
(1993-2001)**



**Technology Transfer for Education
Student Participation (1993 - 2001)**





Education Partnerships In New Mexico



Measures of Success in Tech Transfer/Community Outreach



- Federal Laboratory Consortium (FLC) 2001 Award for Excellence in Technology Transfer
- Letter of Recognition from Governor of the State of New Mexico, 2001
- Commendation from NM House of Representatives for Education Outreach through Technology Transfer, 2001
- Commendation from the entire NM Congressional Delegation for Technology Transfer and Community Outreach in FY00 and FY01
- FY00 Annual Report to Congress on DOD Technology Transfer, highlights NM Partnership Intermediaries, the Office of Technology Transfer for Education, and the Alliance for Photonic Technologies
- 136 Education Partnership Agreements and 154 Cooperative Research and Development to date (partially investment over \$97M in CRADAs)
- CNN Headline News broadcast of Eldorado HS's Satellite Door design under AFRL SPACE project
- Over 150 New Mexico School Partners and over 49,000 Students Impacted
- Over 2,500 Letters of Appreciation from Students, Teachers, and Principals
- Several Local & State Government and NM State Legislature Commendations and Memorials Recognizing Landmark AFRL Education Partnerships from FY95 through FY00 (13)
- General Ronald Yates, 1997 Team Award for Technical Excellence in Technology Transfer (the Highest AF Tech Transfer Award)
- FLC Mid Continent Regional Laboratory 1998 Award of Merit for Excellence in Technology Transfer
- FLC Mid Continent Regional Laboratory of the year Award for 1997
- FLC Mid Continent Regional Tech Transfer Support Group Award of the year 1997 for NM TECH
- FLC National Outstanding Service Award for Tech Transfer for the year 1996



OFFICE OF THE GOVERNOR

STATE CAPITOL
SANTA FE, NEW MEXICO 87505

GARY E. JOHNSON
GOVERNOR

February 21, 2001

(505) 827-3000

Mr. Gerald Mora, Manager
Office of Technology Transfer for Education
AFRL - Phillips Research Site
P.O. Box 9086
Albuquerque, New Mexico 87119

Dear Mr. Mora:

It is my understanding that congratulations are in order for you and your team of Ronda Cole, Marla Griego and Raina Pellegrino on your nomination and selection for a 2001 Federal Laboratory Consortium (FLC) Award for Excellence in Technology Transfer for your team's work in transferring technology for and to the students of New Mexico.

With over 129 New Mexico school partners and 39,000 students impacted by your work, you have truly set a standard for other federal laboratories and installations. Many people can talk about how to help our schools; few actually act to provide the help needed. The work you and your team do with your education partnerships and provision of computers and other equipment and technology goes a long way toward helping to improve education in our state. Programs like yours show a real commitment to enhanced education and I am very glad to see you get this FLC award.

Please give my thanks and congratulations to your team members. Your accomplishments for New Mexico's students prove how successful technology transfer programs can be and emphasize the importance of the Department of Defense installations to our overall community.

Sincerely,

Gary E. Johnson
Governor



*The House of Representatives
of the
State of New Mexico*

FORTY-FIFTH LEGISLATURE
FIRST SESSION - 2001

*A Certificate Sponsored by Representative Ben Lujan
Expressing the Recognition of the House of Representatives to the
Air Force Research Laboratory
Office of Technology Transfer for Education*

WHEREAS, THE AIR FORCE RESEARCH LABORATORY'S PHILLIPS RESEARCH SITE HAS MADE EDUCATION OUTREACH A TECHNOLOGY TRANSFER PRIORITY; AND

WHEREAS, THE AIR FORCE RESEARCH LABORATORY, NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY AND THE RIO RANCHO PUBLIC SCHOOLS MAINTAIN A STRATEGIC ALLIANCE FOR EDUCATION OUTREACH; AND

WHEREAS, THE AIR FORCE PROGRAMS INCLUDE ONE HUNDRED TWENTY-NINE PUBLIC AND PRIVATE PRIMARY AND SECONDARY SCHOOLS AND HAVE HAD OVER THIRTY-NINE THOUSAND STUDENTS PARTICIPATE TO DATE STATEWIDE; AND

WHEREAS, THE AIR FORCE HAS RECEIVED OVER TWO THOUSAND FIVE HUNDRED LETTERS OF APPRECIATION FROM STUDENTS, TEACHERS, PARENTS, PRINCIPALS AND LEGISLATORS; AND

WHEREAS, THE FEDERAL LABORATORY CONSORTIUM COMPOSED OF OVER SIX HUNDRED FEDERAL LABORATORIES AND CENTERS HAS CHOSEN THE AIR FORCE RESEARCH LABORATORY'S PHILLIPS RESEARCH SITE TO RECEIVE ITS NATIONAL EXCELLENCE IN TECHNOLOGY TRANSFER AWARD FOR ITS EDUCATION OUTREACH IN NEW MEXICO;

NOW, THEREFORE, BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE STATE OF NEW MEXICO THAT THE AIR FORCE RESEARCH LABORATORY'S PHILLIPS RESEARCH SITE BE RECOGNIZED AND COMMENDED FOR ITS COMMITMENT TO EDUCATION OUTREACH THROUGH TECHNOLOGY TRANSFER AND FOR BEING RECOGNIZED IN 2001 BY THE FEDERAL LABORATORY CONSORTIUM WITH THE EXCELLENCE IN TECHNOLOGY TRANSFER AWARD.



*Signed and Sealed at the Capitol,
in the City of Santa Fe.*

BEN LUJAN, SPEAKER

STEPHEN R. ARIAS, CHIEF CLERK

CONGRESS OF THE UNITED STATES

Delegation Office of the State of New Mexico
434 Hart Senate Office Building
Washington, DC 20520
(202) 224-3330

March 15, 2001

Mr. Gerald Mora
Office of Technology Transfer for Education
Air Force Research Laboratory
P.O. Box 9086
Albuquerque, NM 87119

Dear Mr. Mora:

We congratulate you on receiving the National Award for Excellence from the Federal Laboratory Consortium for your work to support New Mexico's schools and universities. Your contribution to New Mexico's educational institutions, through the transfer of scientific and computer equipment and outreach programs, is an excellent example of the benefits of cooperation between the nation's scientific research facilities and our educational system.

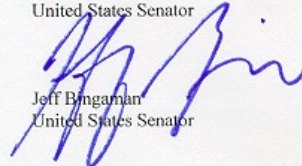
Transferring important technological capabilities to our schools is critical to improving New Mexico's educational standards and performance. This challenge is particularly important to a rural state such as ours, where access to the latest classroom technologies is a major challenge. In this regard, the Office of Technology Transfer for Education at the Air Force Research Laboratory sets the standard by which federal laboratories and the nation's school systems can cooperate to build a better tomorrow for our young people and the nation.

We extend our sincerest congratulations on your award and our gratitude for the work you have done on behalf of New Mexico's schools and universities.

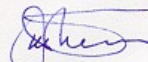
Sincerely,



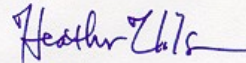
Pete V. Domenici
United States Senator



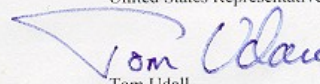
Jeff Bingaman
United States Senator



Joe Skeen
United States Representative



Heather Wilson
United States Representative



Tom Udall
United States Representative

Benefits

- **Enhancing reputation of the laboratory.**
- **Supporting the educational process - A better educated and technology aware public.**
- **Assuring a future Pool of Scientists and Engineers for the laboratory.**
- **Show casing The Army Operations Support Command.**
- **Increased potential for commercial applications.**
- **Participating and contributing member of local communities.**
- **Involving students and teachers in developing viable dual-use applications.**
- **Work force trained on state of the art equipment - potential for higher wages and faster spinup of employees.**

Liabilities

- **Non-compete issues may exist.**
- **Can not help everyone - Make sure you are fair and open.**
- **Program needs to be promoted.**
- **Potential Copyright and Intellectual Property Disputes.**
- **Schools are political and changes can impact long term agreements.**
- **Loaned equipment does not eliminate laboratory safety and security requirements.**
- **Potential liabilities of students injuries using equipment.**

Potential Partnerships

ARMY
OPERATIONS

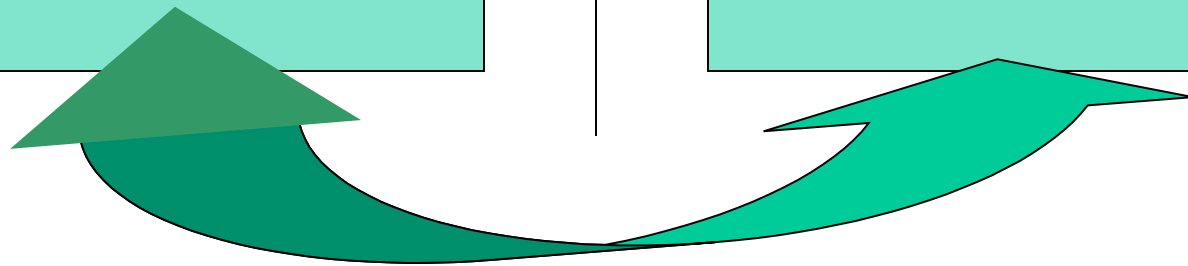
SUPPORT
Interests/Needs
COMMAND

-
-
-

EDUCATIONA
L

INSTITUTION
Capabilities

-
-
-



Keys To Success

- **Proclaim Command Priority**
- **Identify Players**
- **Establish Realistic
~Focus/Expectations**
- **Commit Resources**
- **Implement/Perform**
- **Maintain Continuity**